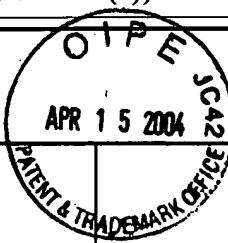


TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT
(Under 37 CFR 1.97(b) or 1.97(c))

Docket No.
UAB-17404/22

In Re Application Of: Fengxia Qi et al.



Serial No.
10/790,914

Filing Date
March 2, 2004

Examiner

Group Art Unit

Title: MUTACIN I BIOSYNTHESIS GENES AND PROTEINS

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37 CFR 1.97(b)

- The Information Disclosure Statement submitted herewith is being filed within three months of the filing of a national application other than a continued prosecution application under 37 CFR 1.53(d); within three months of the date of entry of the national stage as set forth in 37 CFR 1.491 in an international application; before the mailing of a first Office Action on the merits, or before the mailing of a first Office Action after the filing of a request for continued examination under 37 CFR 1.114.

37 CFR 1.97(c)

- The Information Disclosure Statement submitted herewith is being filed after the period specified in 37 CFR 1.97(b), provided that the Information Disclosure Statement is filed before the mailing date of a Final Action under 37 CFR 1.113, a Notice of Allowance under 37 CFR 1.311, or an Action that otherwise closes prosecution in the application, and is accompanied by one of:

the statement specified in 37 CFR 1.97(e);

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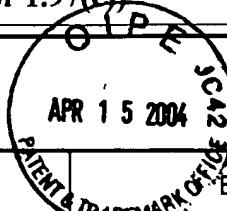
the fee set forth in 37 CFR 1.17(p).

NOTE: Copies of the prior art references cited herein have been previously submitted in the parent applications, Serial Nos. 10/047,676 filed January 14, 2002 and 09/637,376 filed July 28, 2000.

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Dated: April 12, 2004

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UAB-17404/22SERIAL NO.
10/790,914APPLICANT(S)
APPLICANT: Fengxia QiFILING DATE
March 2, 2004

GROUP

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	4,554,101	11/1985	Hopp et al.	260	112.5	
	4,603,102	7/1986	Himmelmann et al.	430	523	
	4,740,593	04/1988	Gonzalez et al.	435	243	
	4,980,163	12/1990	Blackburn et al.	434	94.63	
	5,043,176	08/1991	Bycroft et al.	426	335	
	5,135,910	08/1992	Blackburn etc al.	514	2	
	5,932,469	08/1999	Hillman	435	252.3	
	6,218,362	04/2001	Lavoie et al.			
	6,391,285	05/2002	Hillman	424	50	

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO
	WO 92/18143	10/1992	WIPO				
	WO 93/1987	09/1993	WIPO				
	WO 98/56411	12/1998	WIPO				

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

Chen et al., Applied and Environmental Microbiology, Mar. 1999, p. 1336-1360
Hamada et al., Archs Oral Biol, vol. 20, p. 641-648
Augustin et al. (1992) "Genetic analysis of epidermin biosynthetic genes and epidermin-negative mutants of <i>Staphylococcus epidermidis</i> ", Eur. J. Biochem, 204:1149-1154
Bedwell et al. (1989) "Sequence and Structural Requirements of a Mitochondrial Protein Import Signal Defined by Saturation Cassette Matugeneis", Mol. Cell. Biol., 9:1014-1025

EXAMINER	DATE CONSIDERED

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE CITATION

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Applicant(s)

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*EXAMINER
INITIAL

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

Buchman et al. (1988) "Structure, Expression, and Evolution of a Gene Encoding the Precursor of Nisin, A Small Protein Antibiotic", *J. Biol. Chem.*, 263:16260-16266.

Burdett (1990) "Nucleotide sequence of the tet(M) gene of Tn916", *Mucl. Acid Res.*, 18:6137

Caufield et al. (1990) "Evidence that Mutacin II production is not mediated by a 5.6-kb plasmid in *Streptococcus mutans*", *Plasmid*, 24:110-118

Caufield et al. (1990) "Use of transposon Tn916 to inactivate isolate a mutacin-associated gene from *Streptococcus mutans*", *Infection and Immunity*, 58(12):4126-4135

Caufield et al. (1985) "Distinct bacteriocin groups correlate with different groups of *Streptococcus mutans* plasmids", *Infection and Immunity*, 48(1): 51-56

Chikindas, M.L. et al. (1994) "Mutacin II, a bactericidal lantibiotic from *streptococcus mutans*", *Antimicrobial Agents and Chemotherapy*, 39(12):2645-2660

Chou and Fasman (1975a) "Prediction of Protein Conformation", *Biochemistry*, 13(2):222-245

Chou and Fasman (1974b) "Conformational Parameters of Amino Acids in Helical, β -Sheet, and Random Coil Regions Calculated from Proteins", *Biochemistry*, 13(2):211-222

Chou and Fasman (1978a) "Prediction of the Secondary Structure of Proteins from Their Amino Acid Sequence," *Adv. Enzymol. Relat. Areas Mol. Biol.* 47:45-148

Chou and Fasman (1978b) "Empirical Predictions of Protein Conformation", *Ann. Rev. Biochem.*, 47:251-276.

Chung and Hansen (1992) "Determination of the Sequence of spaE and Identification of a Promoter in the Subtilin (spa) Operon in *Bacillus Subtilis*", *J. Bacteriol.* 174:6699-6702

Dodd et al. (1990) "Analysis of the genetic determinant for production of the peptide antibiotic nisin", *J. Gen. Microbiol.*, 136:555-566

Gawron-Burke and Clewell (1984) "Regeneration of Insertionally Inactivated Streptococcal DNA Fragments after Excision of Transposon Tn916 in *Escherichia coli*: Strategy for Targeting and Cloning of Genes from Gram-Positive Bacteria", *J. Bacteriol.*, 159:214-221.

Bross and Kiltz (1973) "The Number and Nature of α , β -Unsaturated amino Acids in Subtilin", *Biochem. Biophys. Res. Commun.*, 50:559-565.

Hillman, J.D. et al. (1988) "Genetic and Biochemical Analysis of Mutacin 1140, a Lantibiotic from *Streptococcus mutans*", *Infection and Immunity*, 66(6):2743-2749

Horinouchi and Weisblum (1982) "Nucleotide Sequence and Functional Map of pC194, a Plasmid that Specifies Inducible Chloramphenicol Resistance", *J. Bacteriol.*, 150:815-825

Honr et al. (1991) "Nisin biosynthesis genes are encoded by a novel conjugative transposon" *Mol. Gen. Genet.*, 228:129-135

Jakes et al. (1988) "A Hybrid Toxin from Bacteriophage f1 Attachment Protein and Colocin E3 has Altered Cell Receptor Specificity", *J. Bacteriol.*, 170(9):4231-4238

Kaletta and Entian (1989) "Nisin, a peptide antibiotic: cloning and sequencing of the nisA gene and posttranslational processing of its peptide product", *Journal of Bacteriology*, 171(3):1597-1601

Kyte and Doolittle (1982) "A Simple Method for Displaying the Hydropathic Character of a Protein", *J. Mol. Biol.* 157(1):105-132

LeBlanc et al. (1988) "Nucleotide Sequence Analysis of Tetracycline Resistance Gene tetO from *Streptococcus mutans* DL5", *J. Bacteriol.*, 170(*):3618-3626

Liu and Hansen (1992) "Enhancement of the chemical and antimicrobial properties of subtilin by site-directed mutagenesis", *J. Biol. Chemistry*, 267(35):25078-25085

Liu and Hansen (1991) "conversion of *Bacillus subtilis* 168 to a Subtilin Producer by Competence Transformation", *J. Bacteriol.*, 173(22):7387-7390

EXAMINER

DATE CONSIDERED

*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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Group Art Unit

*EXAMINER INITIAL	OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)
	<p>Loyola-Rodriquez et al. (1992) "Purification and properties of extracellular mutacin, a bacteriocin from <i>Streptococcus sobrinus</i>", <i>J. Gen. Microbiology</i>, 138:269-274.</p> <p>Macrina et al. (1977), "Survey of the Extrachromosomal Gene pool of <i>Streptococcus Mutans</i>", <i>Infect. Immun.</i>, 17(1):215-226</p>
	<p>Miller et al. (1991) "Quantitation of Type I, II, and V Collagens in Human Tissue Samples by High-Performance Liquid Chromatography of Selected Cyanogen Bromide Peptides", <i>Anal. Biochem.</i> 196:54-60.</p> <p>Miller et al. (1990) "Amino Acid Analysis of Collagen Hydrolysates by Reverse-Phase High-Performance Liquid Chromatography of i-Fluorenylmethyl Chloroformate Derivates", <i>Anal. Biochem.</i>, 190:92-97.</p>
	<p>Nakano and Kuranmitsu (1992) "Mechanism of <i>Streptococcus mutans</i> Glucosyltransferases: Hybrid-Enzyme Analysis", <i>J. Bacteriol.</i> 174(17):5639-5646.</p> <p>Novak et al. (1996) "Detection of Modified Amino Acids in Lantibiotic Peptide Mutacin II by Chemical Derivatization and Electrospray Ionization -- Mass Spectroscopic Analysis", <i>Analytic Biochemistry</i>, 236:358-360.</p>
	<p>Novak et al. (1994) "Isolation and biochemical characterization of a novel lantibiotic mutacin from <i>Streptococcus mutans</i>", <i>J. Bacteriol.</i>, 176(14):4316-4320.</p> <p>Novak et al. (1994) "Genetic and biochemical characterization of a novel lantibiotic from <i>Streptococcus mutans</i>", 7th International Congress of Bacteriology and Applied Microbiology Division, Jul. 3-8, 1994.</p>
	<p>Novak et al. (1993) "Biochemical Analysis of a Group II mutacin from <i>Streptococcus mutans</i>", 93rd General Meeting, Atlantic, Georgia, May 1993.</p> <p>Novak et al. (1994) "Characterization of a novel lantibiotic from <i>Streptococcus mutans</i>", IVth International ASM Conference on Streptococcal Genetics, Santa Fe, New Mexico, May 15-18, 1994.</p>
	<p>Ochman et al. (1993) "Use of Polymerase Chain Reaction to Amplify Segments Outside Boundaries of Known Sequences", <i>Method. Enzymol.</i> 218:309-321.</p> <p>Parrot et al. (1990) "Preliminary characterization of four bacteriocins from <i>Streptococcus mutans</i>", <i>Can. J. Microbiol.</i>, 36:123-130.</p>
	<p>Schnell et al. (1992) "Analysis of genes involved in the biosynthesis of lantibiotic epidermin", <i>Eur. J. Biochem.</i>, 204:57-68.</p> <p>Sevag et al. (1938) "The isolation of the components of Streptococcal nucleoproteins in serologically active form", <i>J. Biol. Chem.</i>, 124:425-436.</p>
	<p>Tagg et al. (1976) "Bacteriocins of Gram-Positive Bacteria", <i>Bacteriol. Rev.</i>, 40(3):722-750</p> <p>Tagg et al. (1990) "A longitudinal study of Lancefield group A streptococcus acquisitions by a group of young Dunedin schoolchildren", <i>N.Z. Med. J.</i>, 103:429-31.</p>
	<p>Treuit-Cuot et al. (1990) "Nucleotide sequence of the erythromycin resistance gene of the conjugative transposon Tn1545", <i>Nuc. Acids Res.</i>, 18(12):3660.</p> <p>Tudor et al. (1990) "Size of the <i>Streptococcus mutans</i> GS-5 Chromosome as Determined by Pulsed-Field Gel Electrophoresis", <i>Infect. Immun.</i> 58(3):838-840.</p>
	<p>Van der Meer et al. (1993) "Characterization of the <i>Lactococcus lactis</i> Nisin A Operon Genes nisP, Encoding a Subtilisin-Like Serine Protease Involved in Precursor Processing, and nisR, Encoding a Regulatory Protein Involved in Nisin Biosynthesis", <i>J. Bacteriol.</i>, 175(9):2578-2588</p>
	<p>Van der Rijn and Kessler (1980) "Growth Characteristics of Group A Streptococci in a New Chemically Defined Medium", <i>Infect. Immunol.</i>, 27(2):444-448.</p> <p>Woodruff et al. (1998) "Sequence Analysis of a mutA and mutM genes involved in the biosynthesis of the lantibiotic mutacin II in <i>Streptococcus mutans</i>", <i>Gene</i> 206:37-43.</p>

EXAMINER

DATE CONSIDERED

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